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in Japan

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【Title of the Invention】 PORTABLE COMMUNICATION

APPARATUS

【Scope of Claim for a Patent】

【Claim 1】 A portable communication apparatus having a display section and an operation section, characterized by comprising:

selection means for selecting a desired information item from a plurality of information items displayed in the display section; and decision means for deciding on the selection of the information item selected by the selection means, wherein the selection means and the decision means are disposed in close proximity.

【Claim 2】 The portable communication apparatus according to claim 1, characterized in that the selection means is composed of a plurality of move operation keys for designating a direction in which a selection is made among a plurality of information items displayed in the display section, and the decision means is composed of a decision operation key disposed at a position surrounded by the plurality of move operation keys.

【Claim 3】 The portable communication apparatus according to claim 2, characterized in that an operation-key group including the plurality of move operation keys and the decision operation key is spatially disposed away from another operation-key group in the operation section.

【Claim 4】 The portable communication apparatus according to claim 1, characterized in that the selection means

is composed of a plurality of switch contact points for designating a direction in which a selection is made among a plurality of information items displayed in the display section, and the decision means is composed of a pressable-switch contact point disposed at a position surrounded by the plurality of switch contact points.

【Claim 5】 The portable communication apparatus according to claim 4, characterized in that the selection means and the decision means are composed of a single operation lever, wherein any one of the plurality of switch contact points is closed by inclining the operation lever in a desired direction, and the pressable-switch contact point is closed by pressing the operation lever.

【Claim 6】 A portable communication apparatus having a display section and an operation section, characterized by comprising:

move means for moving a portion of interest, which indicates one of a plurality of information items displayed in the display section; and

decision means for deciding on the selection of the information item indicated by the portion of interest,

wherein the move means and the decision means are disposed in a single area within the operation section.

【Claim 7】 The portable communication apparatus according to claim 6, characterized in that the area in which the move means and the decision means are disposed is spatially away from another operation-section area in the operation

section.

【Claim 8】 The portable communication apparatus according to claim 6 or 7, characterized in that the move means is composed of a plurality of move operation keys for designating a direction in which the portion of interest is moved, and the decision means is composed of a decision operation key disposed at a position surrounded by the plurality of move operation keys.

【Claim 9】 The portable communication apparatus according to claim 6 or 7, characterized in that the move means is composed of a plurality of switch contact points for designating a direction in which the portion of interest is moved, and the decision means is composed of a pressable-switch contact point disposed at a position surrounded by the plurality of switch contact points.

【Claim 10】 The portable communication apparatus according to claim 9, characterized in that the move means and the decision means are composed of a single operation lever, wherein any one of the plurality of switch contact points is closed by inclining the operation lever in a desired direction, and the pressable-switch contact point is closed by pressing the operation lever.

【Claim 11】 A method for selecting one of a plurality of information items displayed in a display section of a portable communication apparatus, characterized by comprising:

moving a portion of interest, which indicates one of the plurality of information items displayed in the display section, to a desired information item, by operating move keys; and

inputting the desired information item indicated by the portion of interest, by operating a decision key.

【Claim 12】 A portable communication apparatus having a display section and an operation section, characterized by comprising:

registration memory in which a plurality of callee names and corresponding callee telephone numbers are registered;

move means for moving a portion of interest, which indicates one of a plurality of callee names displayed in the display section, to a desired callee name;

decision means for deciding to place a call to the desired callee name indicated by the portion of interest; and

control means for, when the desired callee name is decided by the decision means, reading a callee telephone number corresponding to the desired callee name from the registration memory, and executing a call operation,

wherein the move means and the decision means are disposed in close proximity to each other.

【Detailed Description of the Invention】

【0001】

【Technical Field of the Invention】

The present invention relates to a portable communication apparatus such as a mobile telephone and, more particularly, to a portable communication apparatus that has a function of displaying selective information in a display section.

【0002】

【Prior Art】

There have been proposed mobile telephones of such a type as to display necessary information in a display section, such as a liquid crystal display, and allow a user to make a selection. For example, a small-sized portable wireless telephone device disclosed in Japanese Patent Application Unexamined Publication No. H4-29426 is provided with scroll buttons for allowing displayed information to be scrollably displayed and confirmation buttons disposed so as to correspond to the displayed information. A user can make a required selection from the information displayed in the display section by using the confirmation buttons.

【0003】

Moreover, a mobile telephone disclosed in Japanese Patent Application Unexamined Publication No. H6-338931 is provided with a table in which dial numbers are registered. A user operates operation keys that have been switched to an abbreviation mode, whereby a registered dial number is selected and displayed in a display section. Then, the user operates a call key, whereby a call to the selected dial number is placed.

【0004】

【Problems to be Solved by the Invention】

However, any of the above-described conventional telephones is complicated in key operation. The procedure is bothersome particularly in highly frequent dialing, and a user needs to move a finger many times for key operation. For example, in the case of the above-described conventional type of scrolling displayed information with the scroll buttons and making a

selection with the confirmation buttons, since the confirmation buttons are disposed so as to correspond to predetermined positions in the display section, a user needs to move a finger among the confirmation buttons to make a selection every time information is displayed upon scrolling. Moreover, in the case of the type of switching the operation keys to the abbreviation mode and then selecting a registered number, not only the key operation for switching to the abbreviation mode is needed, but also an operation for searching for a registered number by using the keys in the abbreviation mode is added, and furthermore, an operation of the call key for dialing is needed.

【0005】

An object of the present invention is to provide a portable communication apparatus that enables a user to select desired information by simple key operation from information displayed in a display section.

【0006】

Another object of the present invention is to provide a portable communication apparatus that enables a user to select a desired dial number easily and to place a call simply.

【0007】

【Means for Solving the Problems】

A portable communication apparatus according to the present invention is characterized by including: selection means for selecting a desired information item from a plurality of information items displayed in a display section; and decision means for deciding on the selection of the information item

selected by the selection means, wherein the selection means and the decision means are disposed in close proximity to each other. With the selection means and decision means disposed in close proximity, the user's operation for selecting information is facilitated.

【0008】

Moreover, a portable communication apparatus according to the present invention is characterized by including: move means for moving a portion of interest, which indicates one of a plurality of information items displayed in a display section; and decision means for deciding on the selection of the information item indicated by the portion of interest, wherein the move means and the decision means are disposed in a single area within an operation section. With the move means and decision means integrally disposed in the single area within the operation section, the operability is improved, and the operation for selecting information is further facilitated by using the move means to move the portion of interest.

【0009】

Furthermore, a portable communication apparatus according to the present invention is characterized by including: registration memory in which a plurality of callee names and corresponding callee telephone numbers are registered; move means for moving a portion of interest, which indicates one of a plurality of callee names displayed in a display section, to a desired callee name; decision means for deciding to place a call to the desired callee name indicated by the portion of

interest; and control means for, when the desired callee name is decided by the decide means, reading a callee telephone number corresponding to the desired callee name from the registration memory and executing a call operation, wherein the move means and the decision means are disposed in close proximity to each other. The call operation is facilitated, because the move means and decision means are integrally disposed in a single area within an operation section and the move means is used to move the portion of interest and thereby to designate a callee.

【0010】

【Mode for Carrying Out the Invention】

FIG. 1 is a perspective view showing an external appearance of a mobile telephone, which is a first embodiment of a portable communication apparatus according to the present invention. A main body 100 of this mobile telephone is provided with a display section 101, such as a liquid crystal display (LCD), and an operation section 102 in which various keys are arranged. The operation section 102 has a first part including move keys 103 and a decision key 104, and a second part including numeric keys, a menu key 105 and other keys. A speaker 106, as a receiver, and a microphone 107, as a transmitter, are disposed on an upper side of the display section 101 and on a lower side of the second part of the operation section 102, respectively. Moreover, an antenna 108 is provided on an upper face of the main body 100, and a battery pack 109 is detachably provided on a back side of the main body 100.

【0011】

In the first part of the operation section 102, the four move keys 103 corresponding to four directions, up, down, left, and right, are disposed so as to surround the decision key 104. As described later, a portion of interest displayed in the display section 101 can be moved upward, downward, leftward, or rightward by pressing one of the move keys 103 corresponding to a desired direction. The information where the portion of interest is positioned is selectively input by using the decision key 104, and then, for example, placing of a call, execution of the menu item, or the like is carried out. Note that the decision key 104 can also double the function of an ordinary "call" key.

【0012】

A user places, for example, a thumb on the first part of the operation section 102 and appropriately operates the up, down, left, and right move keys 103, thereby moving the portion of interest displayed in the display section 101 over a desired information item. After aligning the portion of interest with the desired information item, if the user naturally presses the center-positioned decision key 104 with the same thumb, an action corresponding to the desired information item can be executed. In other words, a required action can be executed merely by placing a finger on the first part of the operation section 102, with hardly moving the finger.

【0013】

Note that although the portion of interest in the display section 101 can be moved in the four directions, up, down, left, and right, with the four move keys 103 here, it is also possible

that the portion of interest can be moved in only two directions, left and right, or up and down, with the provision of two move keys only. The number of move keys 103 may be determined in accordance with the amount of information that can be displayed in the display section 101 of a mobile telephone. For example, if the display section 101 is a display section capable of displaying about one to three callee names when a telephone directory function is used, then two-direction search will suffice, with the provision of two move keys 103.

【0014】

Moreover, according to the present embodiment, the first and second parts of the operation section 102 are spatially separated from each other, thereby further facilitating the move/decision operation using the move keys 103 and decision key 104 in the first part. However, it is also possible to form the first and second parts of the operation section 102 in a single area unless the ease of operation is sacrificed. In this case as well, it is needless to say that the move keys 103 and decision key 104 are disposed in close proximity to each other as the first part.

【0015】

FIG. 2 is a schematic block diagram showing an internal circuit of the present embodiment. To implement a wireless telephone function, a transceiver section 201, a channel controller section 202, a speech processor section 203, and a microprocessor (CPU) 204 are incorporated in the main body 100 of the mobile telephone. The antenna 108 is connected to the

transceiver section 201, and the microphone 107 and speaker 106 as a transmitter/receiver are connected to the speech processor section 203. Information displayed in the LCD display section 101 is controlled by the processor 204 through a LCD controller section 205, and various key operation signals from the operation section 102 are input to the processor 204 through an input controller section 206. Moreover, the present embodiment is provided with a registration number memory 207, in which callee names and telephone numbers are registered, and reading and writing are performed under the control of the processor 204. Hereinafter, a specific example of operation of the present embodiment will be described in detail, with reference to FIGS. 3 to 6.

【0016】

FIG. 3 is a flowchart showing an example of call operations according to the present embodiment, and FIGS. 4 (A) to 4 (E) are diagrams showing display examples corresponding to the call operations. Here, it is assumed that the decision key 104 doubles the function of an ordinary "call" key, that is, the function of allowing a registered name, or a set of a registered name and telephone number, to be displayed in the display section 101.

【0017】

First, when the processor 204 is in a waiting state (YES at step S301) and also no key operation is carried out (NO at step S302), date and time information or the like, as shown in FIG. 4 (A), is displayed in the display section 101.

【0018】

When the decision key 104 is pressed in this waiting state (YES at step S302), the processor 204 reads data from the registration number memory 204 (step S303), allowing the display section 101 to display a plurality of names in columns in the order of the Japanese phonetic alphabet, and setting the portion of interest in an initial position (step S304). For example, as shown in FIG. 4(B), the names are displayed so that the leftmost column is an A-column, the middle column is a Ka-column, and the rightmost column is a Sa-column. The portion of interest 401 is a portion where a displayed name is inversely displayed. The top of the leftmost column is assumed to be the initial position. A telephone number corresponding to a name where the portion of interest 401 is positioned is always displayed in the lowermost row.

【0019】

Subsequently, when any of the move keys 103 is operated (YES at step S305), the portion of interest 401 is moved in a direction corresponding to the operated move key 103 (step S306). For example, when the downward move key 103 is pressed twice, the portion of interest 401 is moved two rows below from "Ando" to "Ito" as shown in FIG. 4(C), and the telephone number of "Ito" is displayed in the lowermost row. In the case where the portion of interest 401 is moved leftward, rightward, upward, and downward within a display area of the display section 101 (No at step S307), the portion of interest 401 is merely moved in accordance with the operation of the move keys 103 (steps S305

to S307).

【0020】

In the case where the portion of interest 401 is moved outside the display area of the display section 101 (YES at step S307), the processor 204 scrolls a display screen of the display section 101 in accordance with the operation of the move keys 103 to display hidden data (step S308) and has the display section 101 inversely display a name in a position according to the direction of operation and the number of times of operation of the move keys 103. For example, when the downward move key 103 is pressed another four times, the displayed data in the A-column is scrolled, and the portion of interest 401 is moved four rows below from "Ito" to "Okada" as shown in FIG. 4(D). Since only the data displayed in a column where the portion of interest 401 is present is scrolled, operation is facilitated in the case of making a search of another column.

【0021】

On the other hand, if the rightward move key 103 is pressed three times in the state where the portion of interest 401 is in the initial position, then upon the third operation of the move key, the displayed data is scrolled rightward and, as shown in FIG. 4(D), the portion of interest 401 is moved three columns to the right from "Ando" to "Takada."

【0022】

When a user has moved the portion of interest 401 to the callee name of a call destination by operating the move keys 103 as described above, then the user presses the decision key

104 surrounded by the move keys 103 (YES at step S305). Upon this press, the processor 204 starts a call action by using the telephone number of the selected callee (step S309).

【0023】

FIG. 5 is a flowchart showing an example of menu display operations according to the present embodiment, and FIGS. 6(A) and 6(B) are diagrams showing display examples corresponding to these operations. When the menu key 105 is pressed in a waiting state (step S302 in FIG. 3), the processor 204 allows the display section 101 to display a list of predetermined functions (step S501). For example, as shown in FIG. 6(A), functions such as "ring volume" and "mail settings" are displayed, and the portion of interest 401 is in the initial position at the top.

【0024】

Subsequently, when any of the move keys 103 is operated (YES at step S502), the portion of interest 401 is moved in a direction corresponding to the operated move key 103 (step S503). For example, when the downward move key 103 is pressed twice, the portion of interest 401 is moved two rows below, from "ring volume" to "vibrator." In the case where the portion of interest 401 is moved upward and downward within the display area of the display section 101 (No at step S504), the portion of interest 401 is merely moved in accordance with the operation of the move keys 103 (steps S502 to S504).

【0025】

In the case where the portion of interest 401 is moved outside the display area of the display section 101 (YES at step

S504), the processor 204 scrolls the display screen of the display section 101 in accordance with the operation of the move keys 103 to display hidden function items (step S505) and has the display section 101 inversely display a name in a position according to the direction of operation and the number of times of operation of the move keys 103. For example, when the downward move key 103 is pressed six times, the displayed items are scrolled, and the portion of interest 401 is moved six rows below from "ring volume" to "initial settings" as shown in FIG. 6(B).

【0026】

When a user has moved the portion of interest 401 to a desired function item by operating the move keys 103 as described above, then the user presses the decision key 104 surrounded by the move keys 103 (YES at step S502). Upon this press, the processor 204 executes the selected function (step S506).

【0027】

FIG. 7 is a perspective view showing an external appearance of a mobile telephone, which is a second embodiment of a portable communication apparatus according to the present invention. In this embodiment as well, an operation section 102 has separate first and second parts. However, the present embodiment is different from the first embodiment shown in FIG. 1 in the configuration of the first part. Note that the other components are substantially the same as those of the first embodiment, and therefore the detailed description thereof will be omitted.

【0028】

The first part of the operation section 102 is provided

with a lever 601 in a stick shape, instead of the move keys 103. The stick-shaped lever 601 is a switch having contact points in four directions, up, down, left, and right. A portion of interest 401 can be moved in a display screen as described above, by inclining the lever 601 in a desired direction. Further, if the lever 601 is structured as a pressable button switch surrounded by the switch contact points in the four directions, the same decision function as the decision key 104 can be further provided by pressing the lever 601, which improves the operability.

【0029】

The shape of the lever 601 may be determined with consideration given to the operability. If it is in a button-like shape as shown in FIG. 7, then, for example, a user places a thumb on an upper face of the lever 601 and inclines the lever 601 in a desired direction to move the portion of interest 401. When the portion of interest 401 reaches a desired callee name or menu item, it suffices that the user presses the lever 601 with the thumb.

【0030】

Since the functions equivalent to the move keys 103 and decision key 104 can be achieved with the single lever 601 only as described above, the present embodiment can contribute to the miniaturization of telephones, as well as the improvement in the operability.

【0031】

As described hereinabove, according to the present

invention, the move keys and the decision key are disposed in as close proximity to each other as are almost in one unit. Therefore, it is possible to select required displayed information with a finger hardly moved. Accordingly, the operation is extremely easy, without being confused in searching for a key when selecting desired information from a plurality of pieces of displayed information. In addition, when making a selection among various setting functions as well, it is possible to select a desired function easily, and, what is more, it is possible to execute the function only by pressing the adjacent decision key. As described above, according to the present invention, it is possible to greatly improve the operability of a portable communication apparatus.

【0032】

Further, according to the present invention, the functions equivalent to the above-mentioned move keys and decision key can be implemented with a single lever, which can also contribute to miniaturization, as well as a further improvement in the operability of a portable communication apparatus.

【Brief Description of the Drawings】

【FIG. 1】

FIG. 1 is a perspective view showing an external appearance of a mobile telephone, which is a first embodiment of a portable communication apparatus according to the present invention.

【FIG. 2】

FIG. 2 is a schematic block diagram showing an internal circuit of the present embodiment.

【FIG. 3】

FIG. 3 is a flowchart showing an example of call operations according to the present embodiment.

【FIG. 4】

FIGS. 4(A) to 4(E) are diagrams showing display examples corresponding to the call operations shown in FIG. 3.

【FIG. 5】

FIG. 5 is a flowchart showing an example of menu display operations according to the present embodiment.

【FIG. 6】

FIGS. 6(A) and 6(B) are diagrams showing display examples corresponding to the menu display operations.

【FIG. 7】

FIG. 7 is a perspective view showing an external appearance of a mobile telephone, which is a second embodiment of a portable communication apparatus according to the present invention.

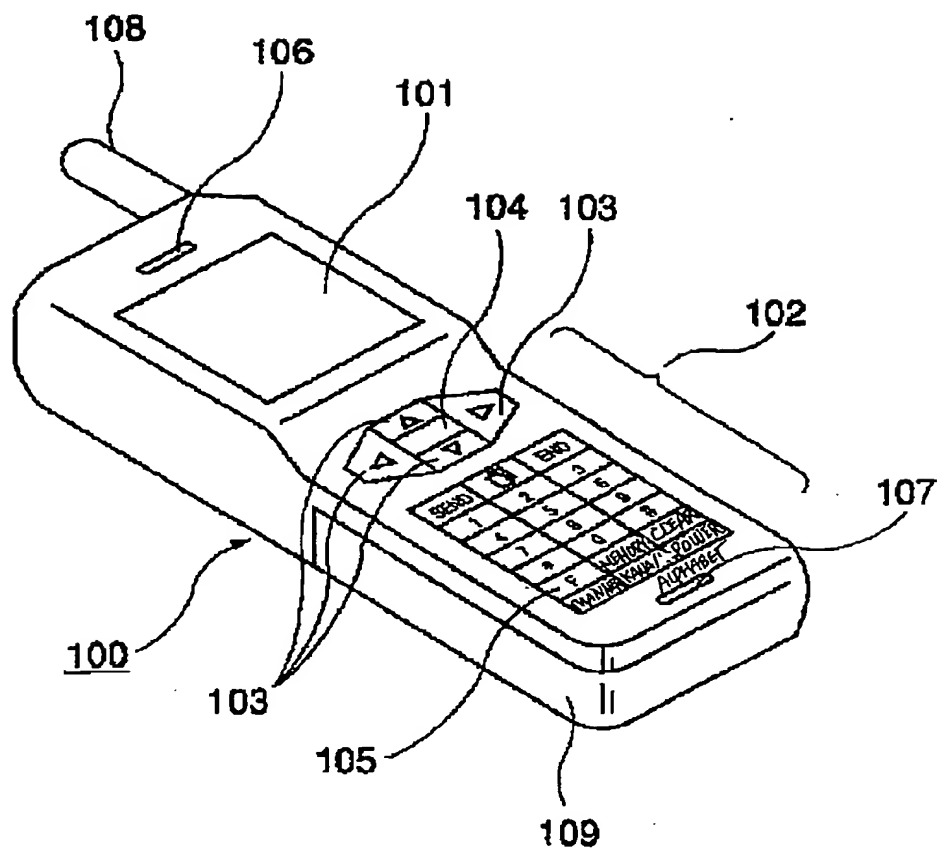
【Description of the Reference Numerals】

- 101 Display section
- 102 Operation section
- 103 Move key
- 104 Decision key
- 105 Menu key
- 106 Speaker
- 107 Microphone
- 108 Antenna
- 109 Battery pack
- 201 Transceiver section

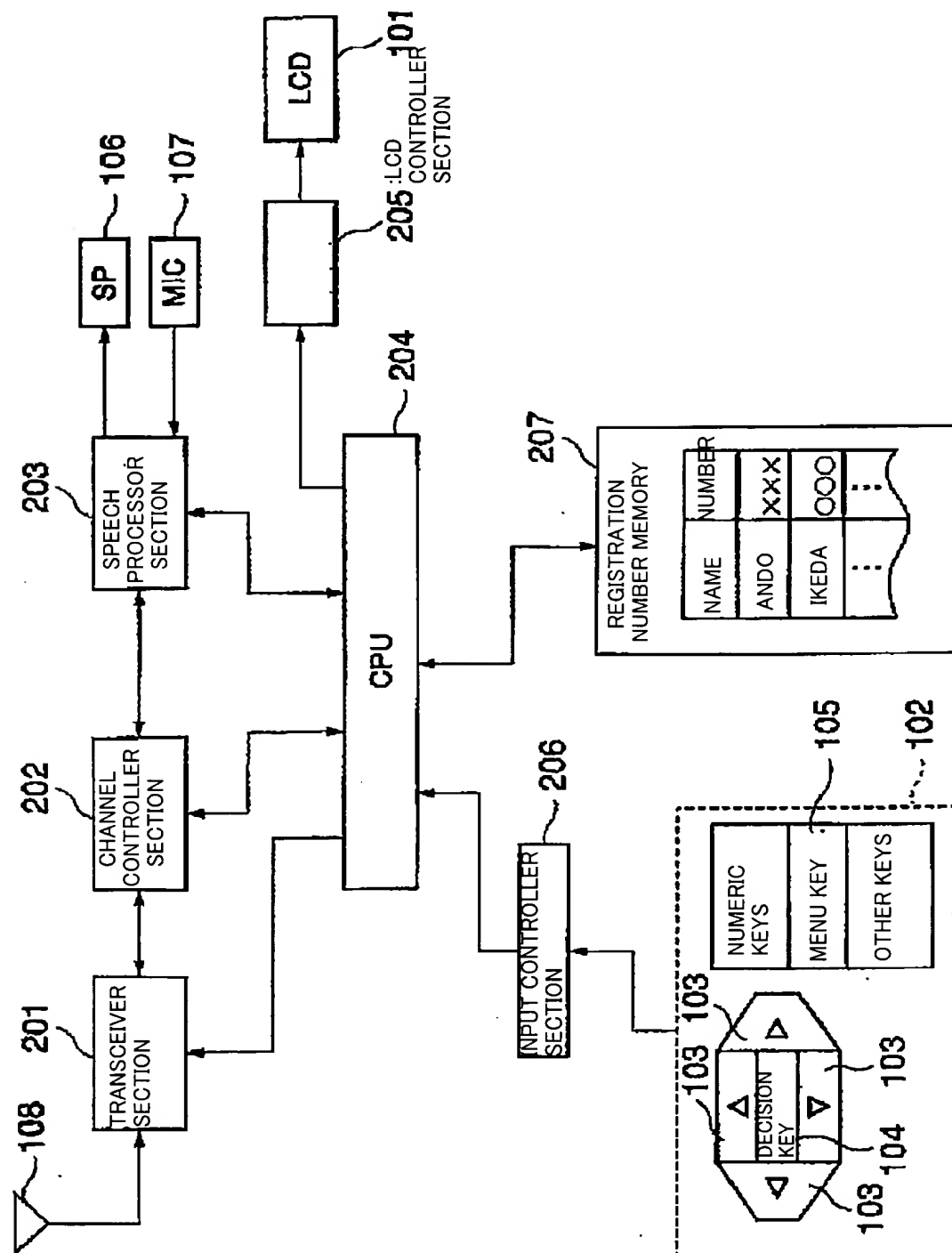
202 Channel controller section
203 Speech processor section
204 Processor
205 Input controller section
206 Registration number memory
401 Portion of interest
601 Lever

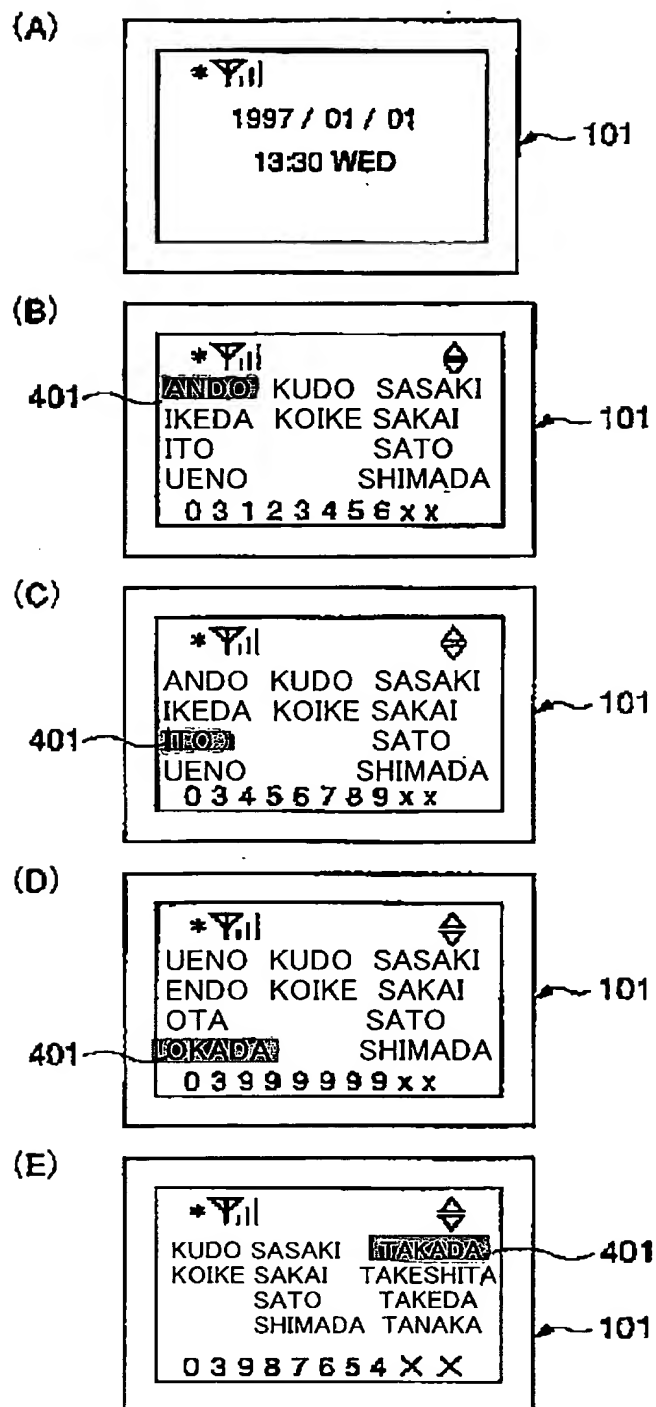
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[Name of document] Drawing

[FIG.1]

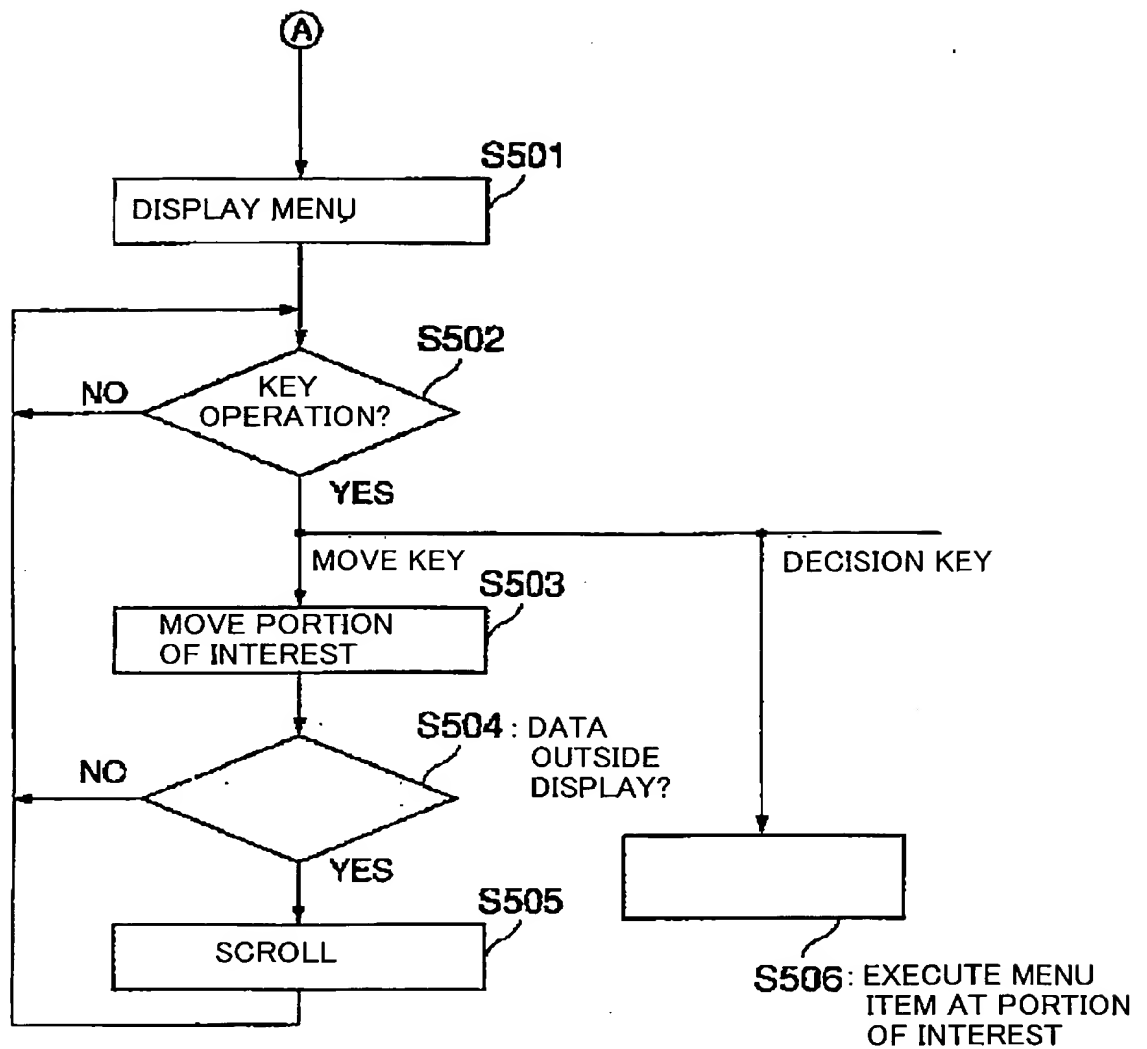


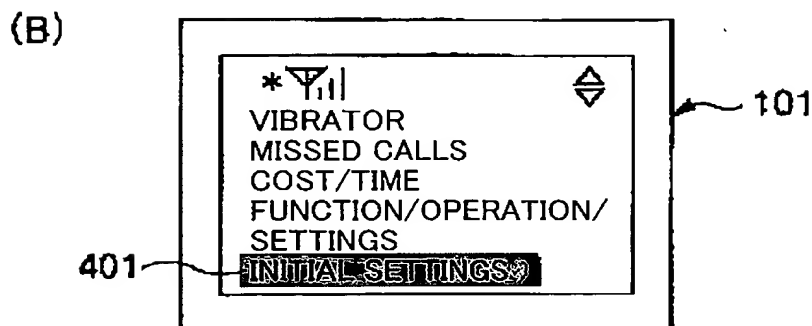
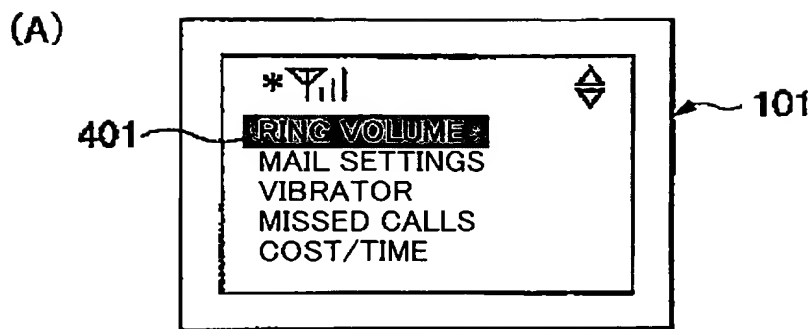
[FIG.2]





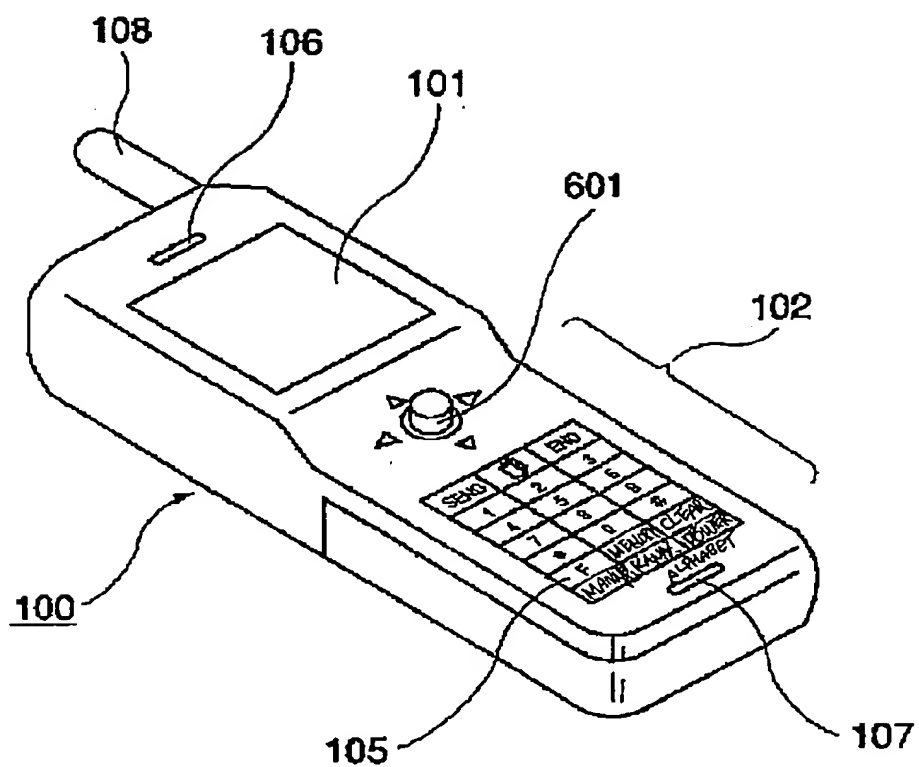
[FIG.5]





[FIG.7]

7/7



【Name of Document】 Abstract

【Abstract】

【Object】 To provide a portable communication apparatus that enables desired information to be selected by simple key operation from information displayed in a display section.

【Solving Means】 A portable communication apparatus has move keys for moving upward and downward, and/or leftward and rightward, a portion of interest that indicates one of a plurality of information items displayed in a display section, and a decision key for deciding on the selection of the information item indicated by the portion of interest. The move keys and the decision key are disposed in close proximity to each other, in a single area within an operation section.

【Selected Drawing】 FIG. 1